SPATIAL*net*™

Release 3.0

SPATIALnet Access Manager User Manual

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Proprietary Notice

Trademark Acknowledgement

Preface

SPATIALnet Access Manager User Manual

The SPATIALnet Access Manager User Manual provides guidelines for the preparation and maintenance of licencing for SPATIAL*net* installations. Included in this document are architectural considerations and descriptions of the various Access Manager commands provided with SPATIAL*net*.

Scope

This document does not describe the operation or client/server requirements of SPATIAL*net*. These may be found in other documents.

Who should use this manual?

This document is provided as a reference for the System Administrator responsible for maintaining and/or supporting the SPATIAL*net* installation.

Prerequisite knowledge

A basic working knowledge of Windows operating systems and networking is required.

Definitions and Acronyms

Definition	Meaning
EAM	Entity Abstraction Manager
SAM	SPATIAL*net* Access Manager

Related documentation

The following manuals in the SPATIAL*net* documentation series will be of interest to the System Administrator:

Document name	Description
SPATIAL*net Release Notes*	This document provides installation and configuration information specific to the accompanying SPATIAL*net* release. Details of functional enhancements, fixed problems and known limitations are included in the document.

Document name	Description
SPATIALnet System Administrator's Manual	This document describes administration of a SPATIAL*net* installation
SPATIAL*net Installer's Guide*	This document describes how to install SPATIAL*net* on your system.
SPATIAL*net Technical Specification*	Includes details of supported platforms and system requirements

For additional information regarding site-specific administration tasks, please refer to the user manual supplied with your configuration of SPATIAL*net*.

Conventions used in this manual

Below is a list of the typographical conventions used throughout the text.

Warnings and other important information are shown in a **bold** typeface. Keyboard entries, menu commands and the names of buttons also appear in this typeface.

Angled brackets shown inside a command or name indicate a full or partial path name that is to be supplied by the reader.

Comments and suggestions

We welcome all comments on the software and documentation, and are very interested in suggestions that would help us to enhance the SPATIAL*net* product and its usefulness to you. Please record your comments and send them to your distributor of SPATIAL*info* products.

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Chapter 1

Access Manager Architecture

The SPATIAL*net* Access Manager controls the use of SPATIAL*net* software. This manual contains recommendations regarding licencing options, instructions for installation and configuration of the licensing software and detailed usage instructions for its various components.

SPATIAL*net* licensing has two options:

- a single network licence with a server running the SPATIAL*net* Access Manager
- individually licensed clients each running the SPATIAL*net* Access Manager

Before SPATIAL*net* can be used on a PC, the PC must be able to contact a SPATIAL*net* Access Manager instance reading a licence file containing valid SPATIAL*net* licences.

Network licensing

Network licensing is the licensing option recommended by SPATIAL*info*.

When using network licensing, the Access Manager runs on a PC that is accessible via TCP/IP to clients running SPATIAL*net*. All clients connect to the Access Manager to check that a licence is available for the SPATIAL*net* client to run. A single licence key file is required on the server in which the maximum number of concurrent users is specified.

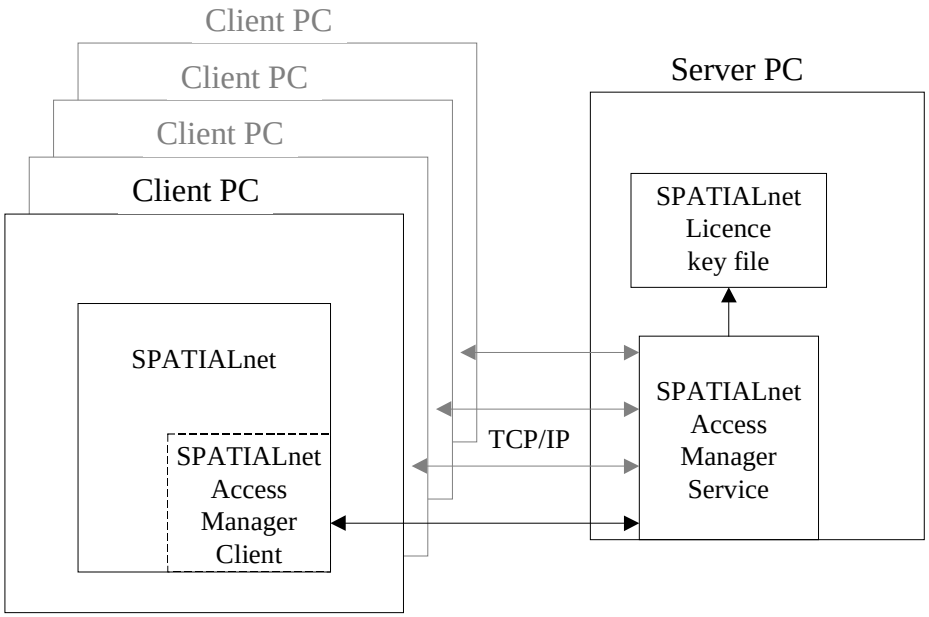


*Figure 1 – Network licensing with SPATIAL*net *Access Manager*

Each client requires configuration to specify the computer on which the SPATIAL*net* Access Manager is running and on what socket it can be contacted.

Individual Workstation Licensing

If workstations are to be individually licensed, each client requires a separate licence key file and must run a copy of the SPATIAL*net* Access Manager Service. This requires individual identification of each workstation and generation of a licence key for each. A high overhead can result from this since hardware failures on a workstation can require a new licence key to be generated. Management and distribution of new key files when a new licence is required or an extension to the licence expiry date can make upgrading your software more difficult.

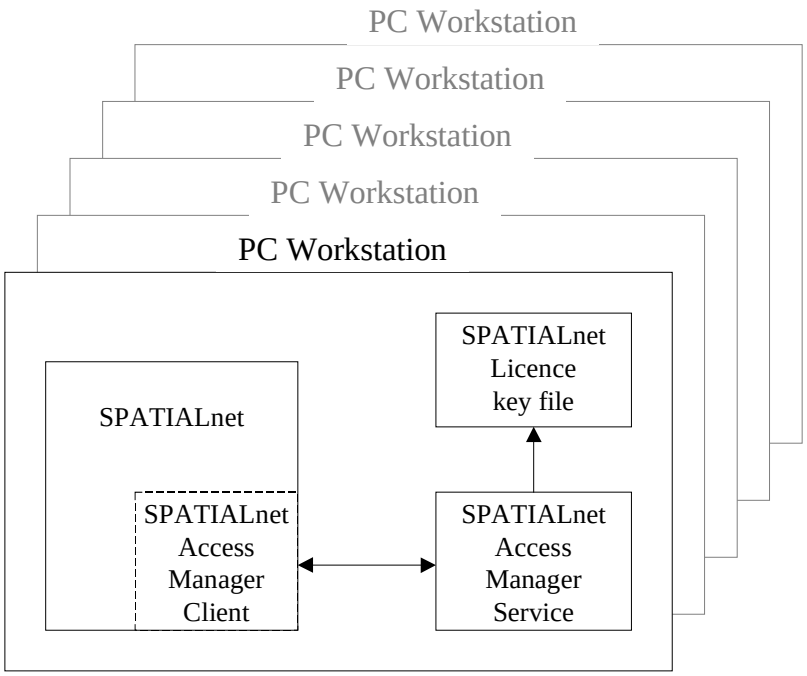


*Figure 2 – Individual workstation licensing with SPATIAL*net *Access Manager*

Each client also requires configuration to specify that the SPATIAL*net* Access Manager is running locally and on what socket it can be contacted.

Chapter 2

Licence key files

All key files are generated by SPATIAL*info*. When requesting a licence key from SPATIAL*info*, you will be asked to provide the following information used in the generation of the licence key file:

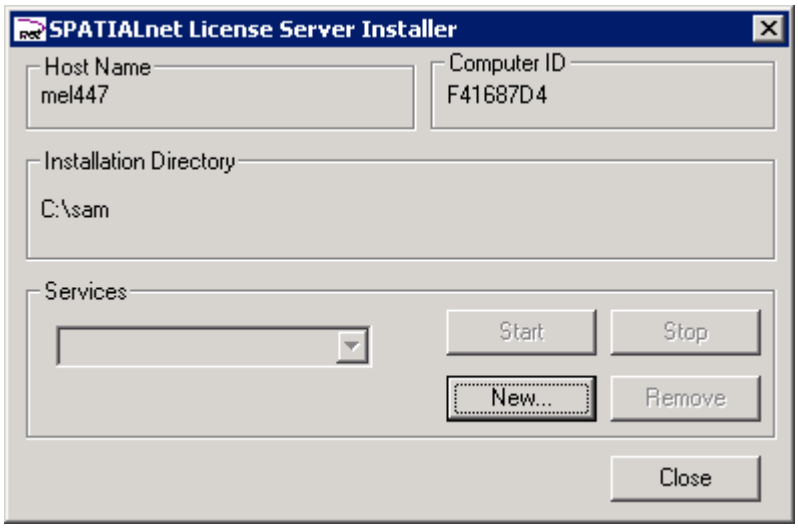
Information	Description
Computer name (host name)	network name of the computer, found in the System applet of the Control Panel. The exact location depends on the operating system version. For Windows 2000, it is **Control Panel > System > Network Identification > Full computer name** For Windows XP, it is **Control Panel > System > Computer Name > Full computer name** the name will also be displayed in the installation and configuration tool provided with the SPATIAL*net* Access Manager
Computer ID	found using the SPATIAL*net* Access Manager installation and configuration tool provided on the SPATIAL*net* Access Manager CD as described below

The SPATIAL*net* Access Manager uses the Computer ID of the server to identify the computer.

NOTE: If the local fixed disks on the computer are changed or reformatted or the network card is changed, a new licence key may be required. If the installation and configuration tool displays a different Computer ID after the changes, a new key will be required.

To find the name and ID of a computer

- ❑ Install the SPATIAL*net* Access Manager software as described in Installing the SPATIAL*net* Access Manager.
- ❑ The Host Name and Computer ID are displayed on the installation/configuration program panel. Exactly what is displayed will vary from computer to computer, but a typical display is shown below



record the specified Host Name (in this example **mel447**) and Computer ID (in this example **F416887D4**) and forward them to SPATIAL*info* with your request for a SPATIAL*net* licence key.

Chapter 3

Installing the SPATIAL*net* Access Manager

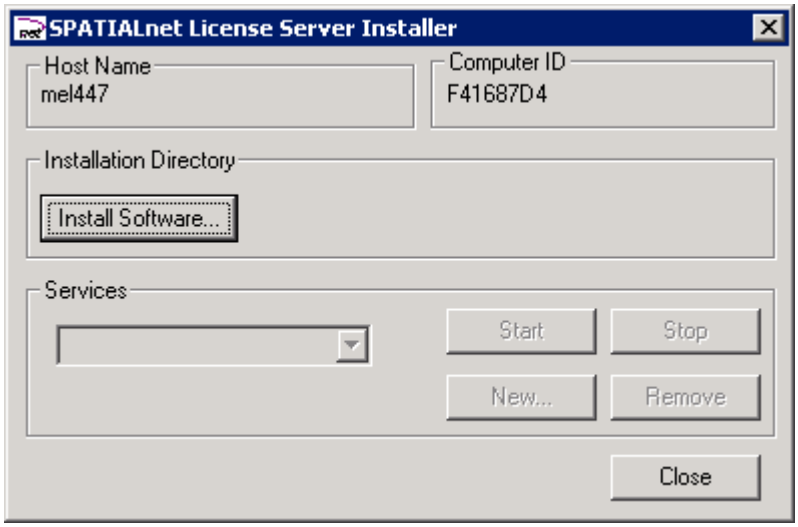
Preparation

The SPATIAL*net* Access Manager software provides a single tool for both installing the software and managing the Access Manager service. First the software must be installed using the installer provided, and then an Access Manager system service can be created and controlled using the same installer.

NOTE: To install system services, you must be a member of the Adminstrators group for the computer.

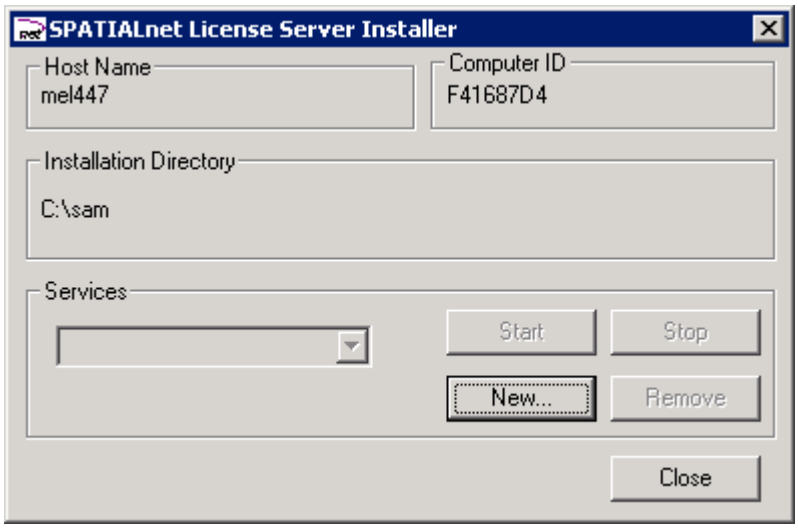
Installing the software

- ❑ insert the SPATIAL*net* Access Manager CD into the CD drive on the computer
- ❑ select the Windows Start > Run menu option
- ❑ browse to the root directory of the CD drive
- ❑ select **saminstall.exe** from the file list and press **Open**
- ❑ press the **OK** button to execute the command
- ❑ when the SPATIAL*net* Access Manager installer displays the following panel



press the **Install Software** button. Note that if the software is already installed, the directory in which it was installed is displayed.

- ❑ select (or create) an appropriate directory for installing the software and press the **OK** button
- ❑ after completing the installation, the option to create a new service will be enabled



Chapter 4

Configuring a SPATIAL*net* Access Manager Service

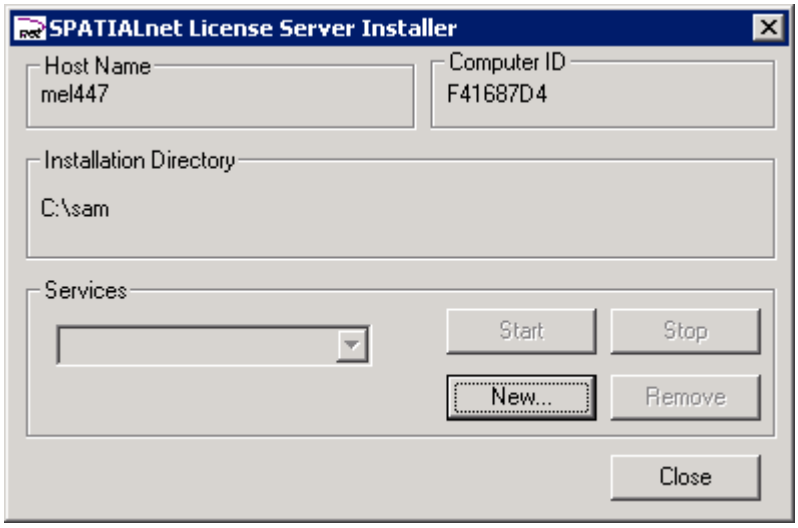
Once the software has been installed, system services can be created, started, stopped and removed using the **saminstall** program.

Creating a new service

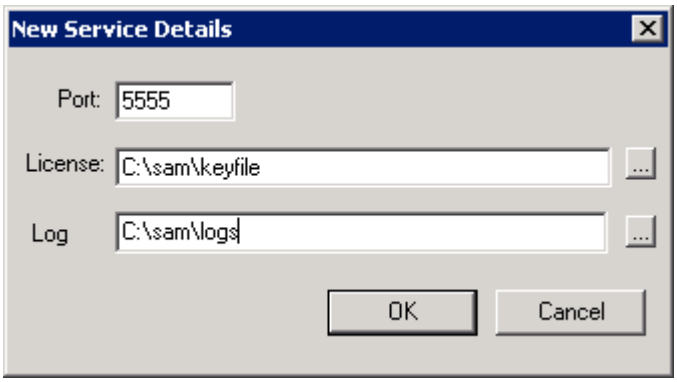
The following procedure describes the creation of a new SPATIAL*net* Access Manager system service using the installer software. To install or remove a system service, you must have local administrator rights. To start or stop a service, you will need to be a member of the Administrators or Power Users groups.

Creating a new Access Manager system service

- ❑ Start **saminstall.exe** from the **\bin** directory under the directory in which you installed the SPATIAL*net* Access Manager software and the following panel will be displayed.



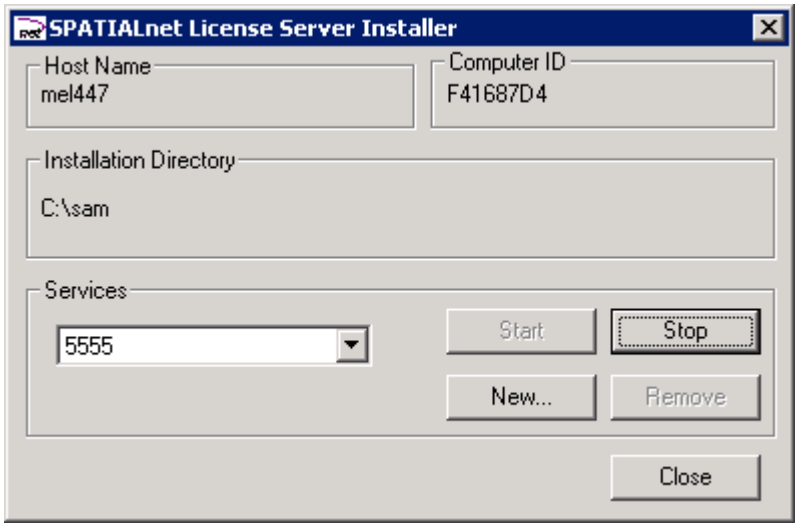
- Press the **New** button and fill in the fields for the socket number, licence key file and log directory as appropriate. Note that the port must be a port that is not currently being used by any other program. The default value used in the SPATIAL*net* software is 5555. In the **Licence** field, the name of the file containing the licence key provided by SPATIAL*info* must be given. The button to the right of the field can be used to display a file selection box. **Note that this file is read by the service whenever it starts, so it must not be moved or the service will not be able to start.** In the **Log** field, the name of a directory for storing the log files written by the Access Manager service must be specified. The button to the right of the field can be used to browse for or create an appropriate directory.



NOTE: If the licence key file is not found or does not contain any valid licences, the service will not start successfully and an error will be logged in the Windows Application event log.

- After the entry fields are all filled in, press the **OK** button and a new service will be created with the parameters specified. The service will also be started or an error will be displayed if the service cannot be started. Information about service operation (including errors) is stored in the Windows **Application** event log or the log file written to the log directory you specified in the previous step. Services are created so that they will automatically be started when the computer boots.

- Once the service has been created, the context sensitive buttons on the main panel reflect the current state of the service. If the service is running (as expected after installation) the **Stop** button is enabled and if the service is stopped, the **Start** button is enabled.



NOTE: only one Access Manager service is allowed to run at any time.

- If an error occurs when creating the service, a dialog box will be displayed and information will be written to the Windows System Event Log. If an error occurs when starting the service, a dialog box will be displayed and information will be written to the Windows Application Event Log. Both event logs can be accessed through the **Control Panel > Administrative Tools > Event Viewer** applet.

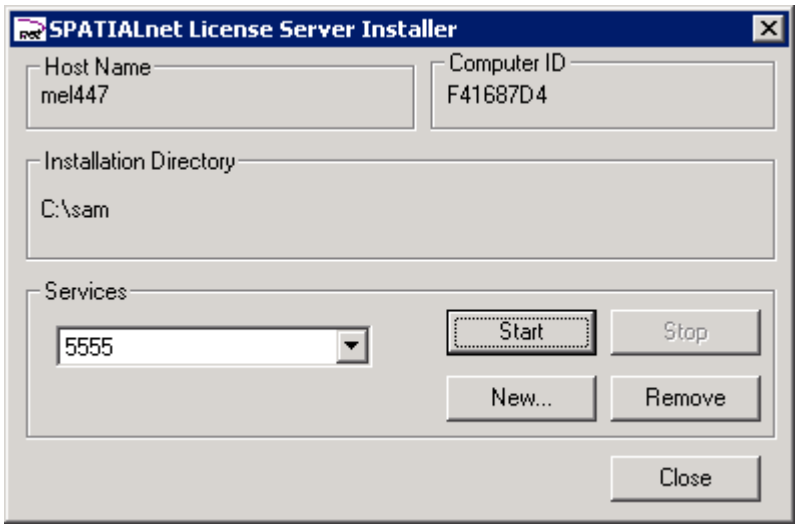
Once a SPATIAL*net* Access Manager service is running with a valid licence file, SPATIAL*net* clients will be able to access the licences. Each client must be configured correctly to find the SPATIAL*net* Access Manager.

Starting a service that is stopped

The following procedure describes how to start an existing SPATIAL*net* Access Manager service using the installer software. To install or remove a system service, you must have local administrator rights. To start or stop a service, you will need to be a member of the Administrators or Power Users groups.

Starting an existing Access Manager system service

- Start **saminstall.exe** from the **\bin** directory under the directory in which you installed the SPATIAL*net* Access Manager software and the following panel will be displayed.



If the installed service is currently not running, the **Start** button will be enabled, otherwise the **Stop** button will be enabled. In this example the service is stopped. Press **Start** to start the service.

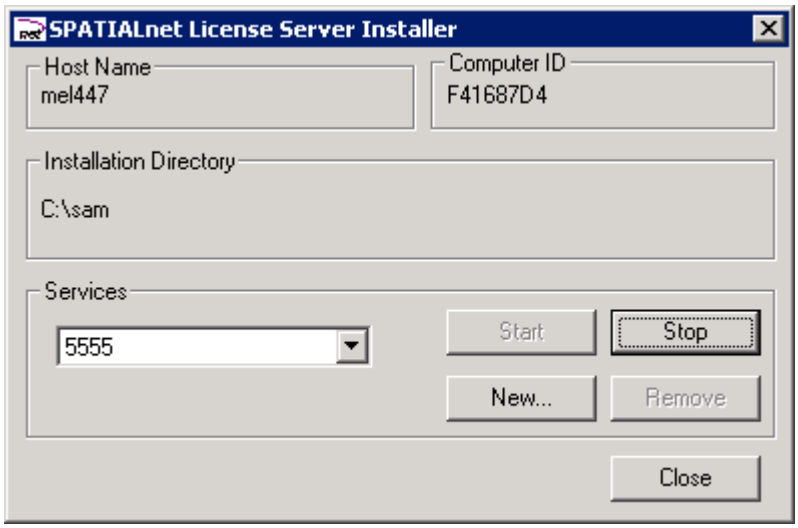
- if an error occurs when starting the service, a dialog box will be displayed and information will be written to the Windows Application Event Log accessed through the **Control Panel > Administrative Tools > Event Viewer** applet.

Stopping a running service

The following procedure describes how to stop a running SPATIAL*net* Access Manager service using the installer software. To install or remove a system service, you must have local administrator rights. To start or stop a service, you will need to be a member of the Administrators or Power Users groups.

Stopping a running Access Manager system service

- Start **saminstall.exe** from the **\bin** directory under the directory in which you installed the SPATIAL*net* Access Manager software and the following panel will be displayed.



If the installed service is currently running, the **Stop** button will be enabled, otherwise the **Start** button will be enabled. In this example the service is already running. Press **Stop** to stop the service.

NOTES

1. Once a service is stopped, any existing SPATIAL*net* sessions will be disconnected. After about 10 minutes, any such sessions will display a warning and after a further 10 minutes, the sessions will refuse to access the database or perform most other SPATIAL*net* operations. It is important that any such sessions disconnect before the operation is limited in this way. If the service is restarted during these delay periods, SPATIAL*net* clients will reconnect and the operation will not be limited. Once the operation has been limited because the Access Manager cannot be found, reconnection will not occur and any unsaved work will be lost.

2. If there are no running services, SPATIAL*net* clients will not be able to access the licences and users will not be able to begin new SPATIAL*net* sessions.

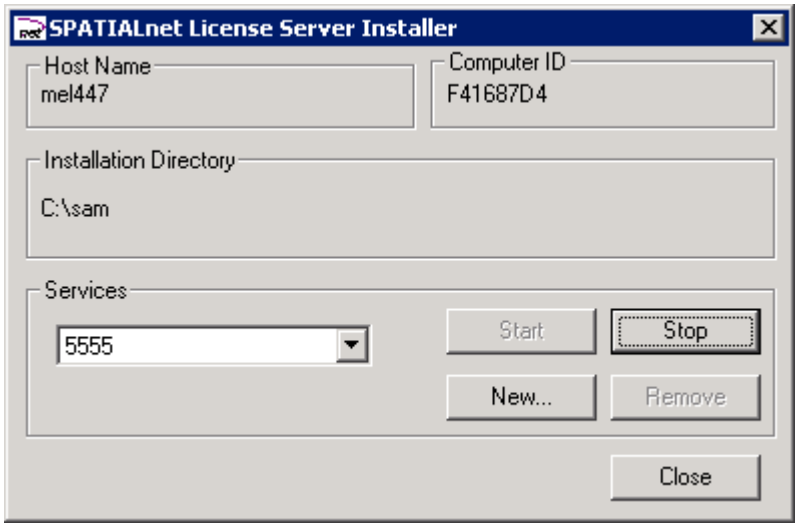
- if an error occurs when stopping the service, a dialog box will be displayed and information will be written to the Windows Application Event Log accessed through the **Control Panel > Administrative Tools > Event Viewer** applet.

Removing an existing service

The following procedure describes the removal of an existing SPATIAL*net* Access Manager system service using the installer software. To install or remove a system service, you must have local administrator rights. To start or stop a service, you will need to be a member of the Administrators or Power Users groups.

Removing an existing Access Manager system service

- Start **saminstall.exe** from the **\bin** directory under the directory in which you installed the SPATIAL*net* Access Manager software and the following panel will be displayed.



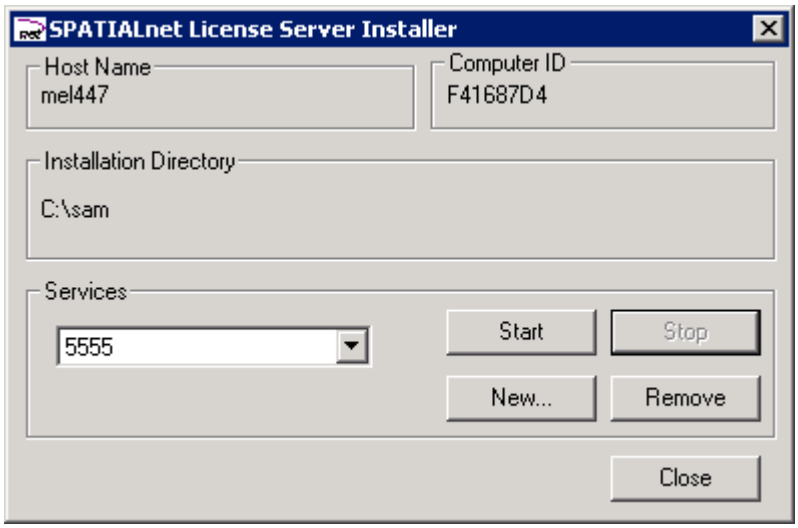
If the installed service is currently running, the **Stop** button will be enabled, otherwise the **Start** button will be enabled. In this example the service is still running. If the service is not currently running, proceed to the next step. Press **Stop** to stop the service.

NOTES

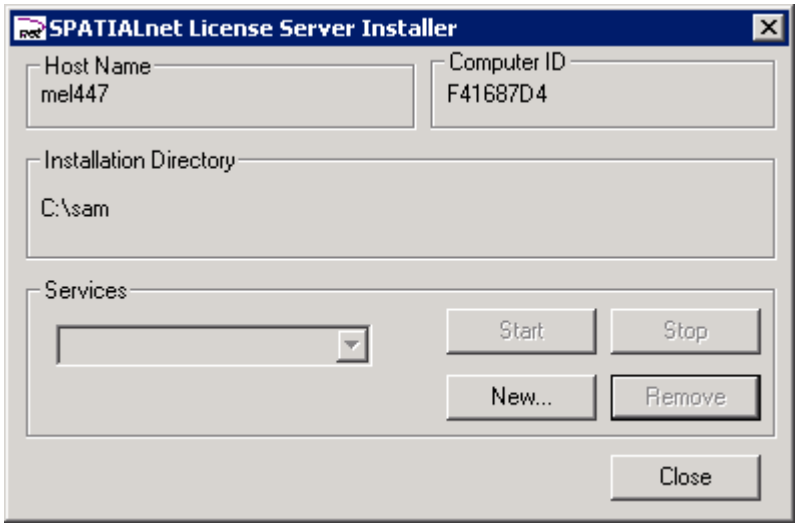
1. Once a service is stopped, any existing SPATIAL*net* sessions will be disconnected. After about 10 minutes, any such sessions will display a warning and after a further 10 minutes, the sessions will refuse to access the database or perform most other SPATIAL*net* operations. It is important that any such sessions disconnect before the operation is limited in this way. If the service is restarted during these delay periods, SPATIAL*net* clients will reconnect and the operation will not be limited. Once the operation has been limited because the Access Manager cannot be found, reconnection will not occur and any unsaved work will be lost.

2. If there are no running services, SPATIAL*net* clients will not be able to access the licences and users will not be able to begin new SPATIAL*net* sessions.

- The **Remove** button should now be enabled.



- Press **Remove** to remove the service from the system. Once a service is removed, it will no longer start when the computer restarts. If there were no other services installed, the panel will now display:



If there are no running services, SPATIAL*net* clients will not be able to access the licences and users will not be able to begin new SPATIAL*net* sessions.

Chapter 5

Configuring SPATIAL*net* Access Manager Clients

Each SPATIAL*net* client must be configured to find the SPATIAL*net* Access Manager. This configuration is included in a file called `licence.ini` found in the bin directory under the directory in which SPATIAL*net* is installed.

For example, if SPATIAL*net* is installed in `C:\SPATIALinfo\SPATIALnet`, the file will be `C:\SPATIALinfo\SPATIALnet\licence.ini`

This file specifies the computer on which the Access Manager is running and the network socket through which it can be contacted.

If you obtained your software from SPATIAL*info*, you may well have received a customised SPATIAL*net* installer that will install a file on each client that has already been configured for your site.

It is a simple Windows .ini file format and contains the following entries:

```
[SAM]
SERVER_HOST=<server_host_name>
SERVER_SOCKET=<server_socket_number>
```

For example, if the SPATIAL*net* Access Manager is running with network licences on a computer called `mel444` using the default socket `5555`, `licence.ini` should contain:

```
[SAM]
SERVER_HOST=mel444
SERVER_SOCKET=5555
```

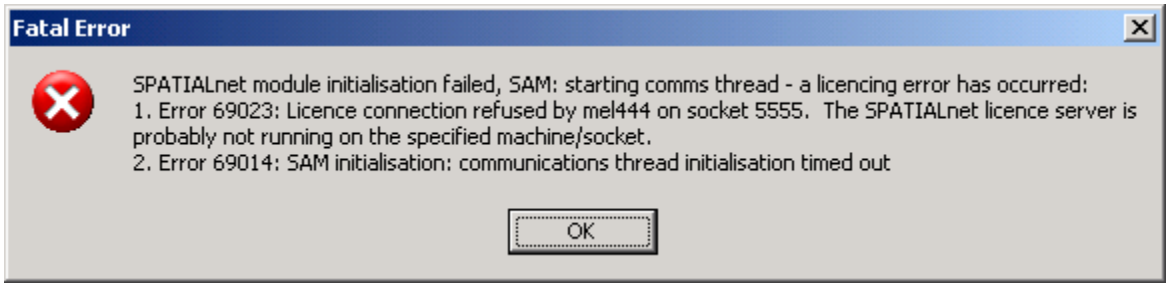
If individual workstation licencing is used, `SERVER_HOST` must be the name of the computer workstation:

```
[SAM]
SERVER_HOST=<workstation_name>
SERVER_SOCKET=<socket_number>
```

Note that if `localhost` is defined in `%WINDIR%\system32\drivers\etc\hosts`, it can be used. If a standard socket number is used for each workstation (eg. 5555), a single file can be copied to all clients containing:

```
[SAM]
SERVER_HOST=localhost
SERVER_SOCKET=5555
```


Until a client is configured as above, use of SPATIAL*net* will not be possible. If SPATIAL*net* is started when no SPATIAL*net* Access Manager service can be found, an error message will be displayed similar to the following:



The message shows the name of the computer and the socket number through which the client is attempting to contact the SPATIAL*net* Access Manager service. The service may not be running, or the client configuration may be wrong, causing SPATIAL*net* to attempt to contact the wrong computer or use the wrong socket. Make sure the service is running and that the client configuration is correct.

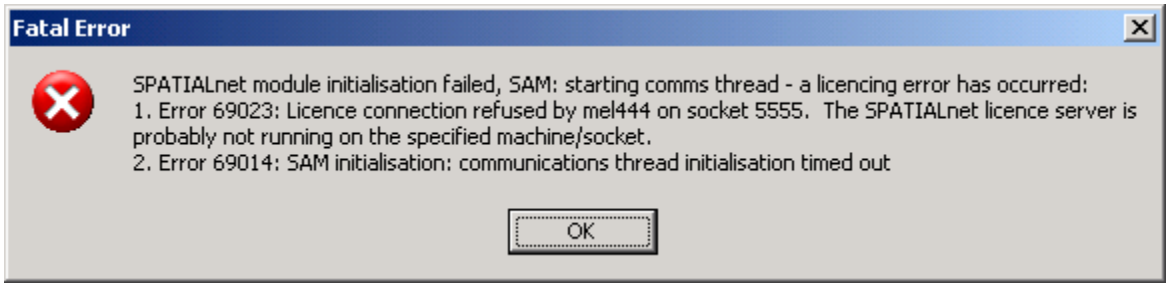
Troubleshooting

In general, once the SPATIAL*net* Access Manager has been correctly set up, there will normally be no problems. This section deals with possible problems that may occur during operation or during the setup process.

SPATIAL*net* Access Manager service cannot be found

Problem

If SPATIAL*net* is started when no SPATIAL*net* Access Manager service can be found, an error message will be displayed similar to the following:



Solution

- Is the computer listed in the message the computer that is expected to run the service? Is the socket number is correct? If either is wrong, update the SPATIAL*net* Access Manager configuration file `bin\licence.ini` in the SPATIAL*net* directory on the client and try starting SPATIAL*net* again
- Is the SPATIAL*net* Access Manager service is running? If not, attempt to restart the service. If the service restarts successfully, try starting SPATIAL*net* again.
- The service won't start? Look in the Windows Application Event log accessed through the **Control Panel > Administrative Tools > Event Viewer** applet. This may give a hint as to the

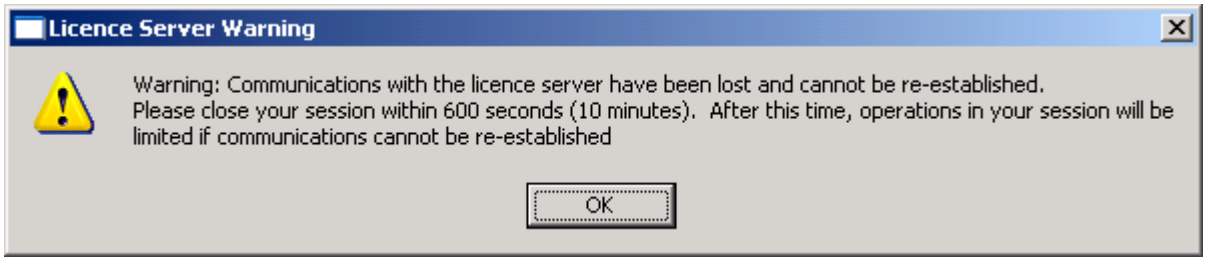
reason – possibly the key file has been moved or an invalid key file is being read. If the logged events give no clue as to the problem, try removing and re-installing the service. If this still does not fix the problem or if the problem recurs, contact SPATIAL*info* for assistance.

- Is the SPATIAL*net* Access Manager service running as expected, but SPATIAL*net* still will not start? There may be a network problem. Try using 'ping' to contact the computer running the service or see if shareable drives can be accessed. Attempting these steps may give a hint as to what the problem is.

SPATIAL*net* Access Manager service lost

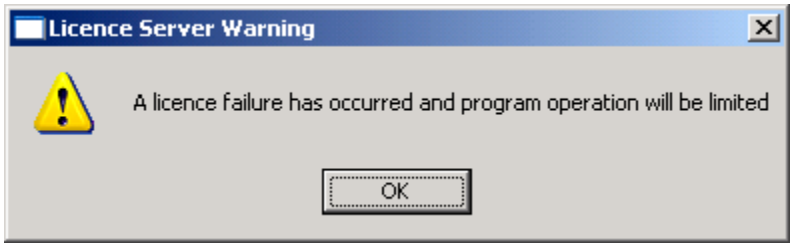
Problem

If SPATIAL*net* is running when the SPATIAL*net* Access Manager service stops and remains stopped for about 10 minutes, an error message will be displayed:



WARNING

After the specified 10 minutes, a message box will be displayed



and the session will refuse to access the database or perform most other SPATIAL*net* operations. It is important that any such sessions disconnect before the operation is limited in this way. If the service is restarted during these delay periods, SPATIAL*net* clients will reconnect and the operation will not be limited. However, once the operation has been limited because the Access Manager cannot be found, reconnection will not occur and any unsaved work will be lost.

Solution

- Has the server been temporarily stopped deliberately, possibly for server maintenance? This is possible if the computer running the service for network licensing is being re-booted. If the service will be running again within the 10 minutes, you may be able to wait for this to happen. In this event, SPATIAL*net* will reconnect and you will be able to continue to use the software
- Has the service been stopped deliberately? Contact your system adminstrator to find out if the service can be restarted. If the service cannot be restarted within the 10 minutes specified, shut

down your SPATIAL*net* session before the time expires. Make sure that you have finished saving and closing your session in under 10 minutes or your changes may be lost.

- Is the SPATIAL*net* Access Manager service is running? If not, attempt to restart the service. If the service restarts successfully, try starting SPATIAL*net* again.
- The service won't start? Look in the Windows Application Event log accessed through the **Control Panel > Administrative Tools > Event Viewer** applet. This may give a hint as to the reason – possibly the key file has been moved or an invalid key file is being read. If the logged events give no clue as to the problem, try removing and re-installing the service. If this still does not fix the problem or if the problem recurs, contact SPATIAL*info* for assistance.
- Is the SPATIAL*net* Access Manager service still running as expected, but a new SPATIAL*net* session will not start? There may be a network problem. Try using 'ping' to contact the computer running the service or see if shareable drives can be accessed. Attempting these steps may give a hint as to what the problem is.

SPATIAL*net* licence expires soon

Problem

If SPATIAL*net* is started when your SPATIAL*net* licence expires in less than 31 days, a warning message will be displayed similar to the following:

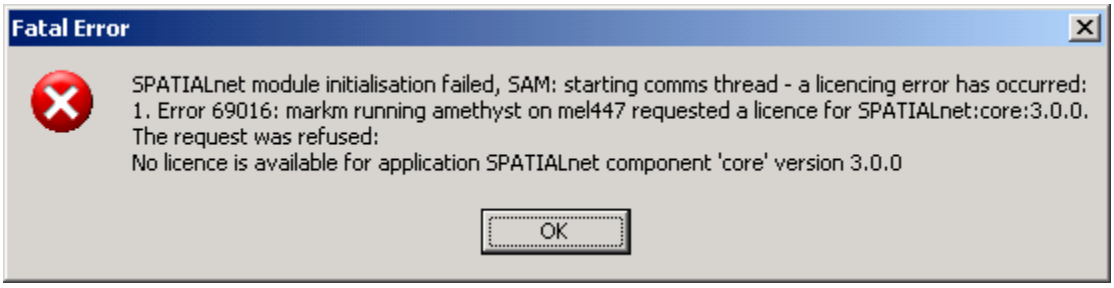
Solution

- Your SPATIAL*net* licence will expire in the given number of days. Every time the software is started until the licence expires, this message will be displayed. Contact your SPATIAL*net* distibutor to have your licence extended.
- Press **OK**, this is only a warning – the session will operate as expected

SPATIAL*net* licence has expired

Problem

If SPATIAL*net* is started after your SPATIAL*net* licence has expired, a message box similar to the following will be displayed and the session will not start:



Solution

- Your SPATIAL*net* licence has expired and SPATIAL*net* will not operate until a valid licence is found. Contact your SPATIAL*net* distibutor to have your licence extended.

Chapter 6

Querying current licence usage

A tool is provided for determining the current licence usage. This is a console-based program run from a DOS window.

samquery.exe is found in the bin directory under the SPATIALnet installation directory.

samquery.exe usage

```
usage:  samquery [-?v] [-h host] [socknum]
        -h host     name of host running samserver
                    (default is localhost)
        -?          display this usage message
        -v          display verbose output
        socknum     socket server is listening to - must be last argument
                    (default is 5555)
```

If you run samquery with no command line arguments on a computer with SPATIAL*net* installed, the query tool will attempt to contact the SPATIAL*net* Access Manager service specified in licence.ini.

The typical output from samquery is shown in the following example:

```
C:\installers\sam>samquery –h scrape
SPATIALnet Licence Server Query tool version 1.0 on Windows 5.1 (build 2600)
Licence usage for 'scrape' socket 5555
4 licences currently in use:
    alanw running deet SPATIALnet on mel428
        CORE version 3.0.0 (connected 23 Oct 2003 16:41:44)
        (licence 0x000455 allocated by threadID 1438 from key 000001)
    peterd running beryl SPATIALnet on mel444
        CORE version 3.0.0 (connected 23 Oct 2003 16:59:16)
        (licence 0x000460 allocated by threadID 94c from key 000001)
    boiv running badl SPATIALnet on mel437
        CORE version 3.0.0 (connected 24 Oct 2003 08:32:35)
        (licence 0x00047a allocated by threadID 1410 from key 000001)
    Administrator running telco SPATIALnet on mel408
        CORE version 3.0.0 (connected 24 Oct 2003 10:11:50)
        (licence 0x00047c allocated by threadID 12d0 from key 000001)
```

Examples

1. to find current licence usage on the computer/socket pair listed in bin\licence.ini the SPATIAL*net* directory:

   ```
   samquery
   ```

2. to find current licence usage on '`mel444`' socket number `5050`:

   ```
   samquery –h mel444 5050
   ```

Chapter 7

Command line usage

The installation/configuration tool **saminstall.exe** is provided which gives a simple graphical interface for installing the SPATIAL*net* Access Manager and managing services on a computer. The service and a matching console based executable can be controlled from a DOS window. This usage is defined in the following sections.

samserver.exe

The SPATIAL*net* Access Manager is available as a console program (largely for debugging) or a system service. samserver.exe is the SPATIAL*net* Access Manager that runs as a console program. It is normally only used under instruction from SPATIAL*info* when it will be easier to view program output immediately. To set up the system service, see samservice.exe.

To run a licence server, you need a licence key from SPATIAL*info*. To make SPATIAL*net* clients use the server you start, you will need to configure them appropriately since clients connect to the licence server specified by the file `bin\licence.ini` in the SPATIAL*net* directory (see Configuring SPATIAL*net* Access Manager Clients).

Usage

```
samserver [-?v] -k keyfile socknum
    -k keyfile  name (and path) of keyfile (default is keyfile)
    -?          display this usage message
    -v          display verbose output
    socknum     socket to listen to - must be last argument
                (socket 5555 is default)
```

Examples

To run the server reading key file '`scrape_15.key`' on socket `5555`:

```
samserver -kscrape_15.key
```

To run the server reading key file '`scrape_100.key`' on socket `6050`:

```
samserver -kscrape_100.key 6050
```

To run the server reading key file '`keyfile`' on socket `5555`:

```
samserver
```

samservice.exe

The SPATIAL*net* Access Manager is available as a console program (largely for debugging) or a system service. `samservice.exe` is the SPATIAL*net* Access Manager that runs as a system service. The executable can also control SPATIAL*net* Access Manager services – installing, starting, stopping and removing them.

To run a licence server, you need a licence key from SPATIAL*info*. To make SPATIAL*net* clients use the server you start, you will need to configure them appropriately since clients connect to the licence server specified by the file `bin\licence.ini` in the SPATIAL*net* directory (see Configuring SPATIAL*net* Access Manager Clients).

To install or remove a system service, you must have local administrator rights. To start or stop a service, you will need to be a member of the Administrators or Power Users groups.

Usage

```
samservice [-?irv] [-k keyfile] [-n socknum] [-start] [-stop]
    -i          install a new service
    -k keyfile  name (and path) of keyfile
                (default is 'keyfile' in the current directory)
    -l logdir   log file location (default is current directory)
    -n socknum  socket to listen to (default is 5555)
    -r          remove an existing (stopped) service
    -start      start a stopped service (default action)
    -stop       stop a running service
    -v          display verbose output
    -?          display this usage message
    Notes:
    1.  if no arguments are given, defaults are used
    2.  the service accesses the keyfile whenever it starts so
        the keyfile must NOT be moved after installation
    3.  the full path of the keyfile must be given unless the
        keyfile is in the current directory
```

Licence server service names are in the form `SPnetLicenceServer<socknum>` (eg. `SPnetLicenceServer5555`). Once a service has been installed, the Services applet in **Control Panel > Administrative Tools** can also be used to start and stop the service. Output from the server (start/stop/error events) is stored in the **Application** event log. This can be viewed with the **Event Viewer** applet or within the **Computer Management** applet both of which can be accessed from **Control Panel > Administrative Tools**.

Examples

To install and run the service reading key file '`scrape_15.key`' on socket `5555` and writing log files to `c:\SPATIALnet\logs`:

```
samservice -i -kc:\SPATIALnet\keys\scrape_15.key -lc:\SPATIALnet\logs
```

To stop the above service when it is running:

```
samservice -stop
```

To start the above service when it is stopped:

```
samservice -start
```

To remove the above service (after stopping it if necessary):

```
samservice -r
```

To install and run the service reading key file '`scrape_100.key`' from the current directory listening to socket `6050` and writing logs to the current directory:

```
samservice -i -kscrape_100.key -n6050
```

To stop a running service on socket `6050`:

```
samservice -stop -n6050
```

To install and run the server reading key file '`keyfile`' on socket `5555`:

```
samservice -i
```

To set up the console program, see samserver.exe.